

## SEVERE LOCAL STORMS, AUGUST, 1928

The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the annual report of the chief of bureau.

Place	Date	Time	Width of path, yards <sup>1</sup>	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Denver, Colo.	1	P. m.				Small tornado	Large trees uprooted; poles and wires damaged.	Official U. S. Weather Bureau.
Campbellsport, Wis.	1	3:30 p. m.			\$29,360	Severe electrical	2 large barns burned.	Do.
Carson, Wis. (near)	1	4:30 p. m.			6,500	Wind and hail	Crops and farm buildings damaged.	Do.
Beldenville, Wis. (near)	1	5:30 p. m.	1,320		10,000	Hail	Crops and windows considerably damaged; poultry injured.	Do.
Grand Junction, Colo.	2	1:20 - 1:30 p. m.	1-2 mi.		15,000	do	Crops injured; other property damaged.	Do.
Floyd County, Iowa	2	5 p. m.			75,000	Wind and hail	Severe property damage.	Do.
Wisconsin (southwestern)	3				67,000	Hail, rain, and wind.	Extensive damage to buildings, highways and bridges.	Do.
Morrell, Nebr.	4	4 p. m.	1,320		15,000	Hail	Crops damaged.	Do.
Burley, Idaho (near)	4				15,000	do	Chief damage to grains.	Do.
Stanton and Cuming Counties, Nebr.	6	2:30 p. m.	2 mi.		50,000	do	Damage principally to corn over a path 6 miles long.	Do.
Harrison, Osceola, and Plymouth Counties, Iowa	6	4-5:30 p. m.	6 mi.		420,000	Wind and hail	Heavy property damage over path 30 miles long.	Do.
Florida to New Jersey	7-13					Tropical hurricane	Scores of buildings unroofed, others wrecked; much citrus fruit ruined; highways, railways, and other public utilities suffer much damage; timberlands hard hit; some lives lost.	Do.
Platte County, Nebr. (northeastern)	8	3-6 p. m.	3 mi.			Hail	Corn damaged 10 to 50 per cent in places.	Do.
Boone County, Nebr.	8	3:30 p. m.	1,760		6,000	do	Crops damaged; path 10 miles long.	Do.
Adams and Cumberland Counties, Pa.	8	8-9 p. m.			25,000	Electrical and rain.	Several barns destroyed; considerable crop damage.	Do.
Viola, Wis. (near)	8	8:50 p. m.	1,760		6,000	Hail	Crops injured.	Do.
Vernon County, Wis. (northwest)	8		1,760		15,000	do	Damage chiefly to tobacco.	Do.
Lancaster, Pa.	10	3-5 p. m.			100,000	Hail, rain, and wind.	4 barns destroyed; telephone service impaired; some loss to tobacco crop.	Do.
Nixon, Tex. (near)	10	5:30 p. m.				Probably a tornado.	Several small buildings overturned, others unroofed; small trees broken.	Do.
Batesbury, S. C. (near)	10	6:30 p. m.	35	2	6,000	Tornado	Some property damage; 9 persons injured.	Do.
Newberry, S. C.	10	9 p. m.			25,000	do	Considerable property damage.	Do.
Towanda, Pa., and vicinity	10	P. m.			50,000	Electrical, wind, and rain.	12 bridges wrecked; roads washed; much crop damage.	Do.
Boone County, N. Y. (western)	10					Thunderstorm and winds.	Many trees uprooted; small buildings overturned; roofs damaged; crops injured.	Do.
Toledo, Ohio	10					do	Overhead wire systems damaged; traffic crippled.	Do.
Green County, N. C. (eastern)	11	3:30 a. m.	150	1	50,000	Tornado	A number of frame houses and barns totally destroyed.	Do.
Atlantic coast, Florida to southern New England	12-17					Tropical hurricane	Heavy damage to buildings, overhead wire systems, highways, etc.; a number of lives lost.	Do.
Charleston, S. C.	15	5 a. m.	33		4,000	Tornado	Slight damage to buildings over path about 700 yards long.	Do.
Little Mountain, S. C.	15	1 p. m.	10		6,000	do	Damage to property over 3-mile path.	Do.
Newberry County, S. C. (lower)	15	do			30,000	do	Considerable property damage reported.	Do.
Bath, S. C.	15	5:30 p. m.	100		5,000	do	Property damaged over short path; 2 persons injured.	Do.
Grand Junction, Colo.	15	7 p. m.	440		6,000	Hail	Damage chiefly to crops.	Do.
Ashley Heights, N. C.	16	4:15 a. m.	175	2	50,000	Tornado	Some frame and small brick buildings wrecked; 10 persons injured; path 800 yards.	Do.
New York (central)	16					Wind, rain, and electrical.	Cellars flooded; public utilities paralyzed; buildings damaged.	Do.
Lookout Mountain, Tenn., to Oglethorpe, Ga.	17	P. m.				Wind and thunderstorms.	Considerable damage to wires; timber and buildings.	Do.
Ida, Kossuth, Plymouth, Pottawattamie, Sac, Sioux, and Woodbury Counties, Iowa	19	3-5 a. m.			985,000	Wind and hail	Extensive crop and property damage.	Do.
Fairview, S. Dak.	19	3 a. m.	5 miles.		10,000	Hail	Much injury to crops.	Do.
Murphy to Phillips, Nebr.	19	4 p. m.				Wind, rain, and hail.	Extensive crop damage.	The Star (Lincoln, Nebr.).
Montgomery, Ala. (near)	19				500	Probably small tornado.	Garage wrecked.	Official U. S. Weather Bureau.
Worth County, Iowa (northwest), to Austin, Minn.	20	4:45 p. m.		6	1,000,000	Tornado	Many buildings demolished; crops ruined; 60 persons injured.	Do.
Twin Lakes, Calhoun County, Iowa	20	5 p. m.	440	2	150,000	do	Heavy crop and property damage over path 5 miles long.	Do.
Webster, Hamilton, Story, Pocahontas, and Hardin Counties, Iowa	20	P. m.		3	175,000	5 tornadoes	Heavy damage to farm and city property; many persons injured.	Do.
Wisconsin (southern)	20	1-10 p. m.			338,500	Wind, hail, and a small tornado.	Farm property, wire systems, trees, etc., suffered severely; tornado in La Crosse County.	Do.
Clinton, Dubuque, Linn, and Marshall Counties, Iowa	20	3-10 p. m.			50,000	Wind and hail	Crops and telephone lines damaged.	Do.
Shannon, Ill.	20	9:30 p. m.	100		10,000	Tornado	Several buildings wrecked or damaged; many trees uprooted; path 2 miles.	Do.
Portage, Mahoning, and Trumbull Counties, Ohio	21					Violent wind and thunderstorm.	Crops and wires damaged; streets and basements flooded; traffic demoralized; heaviest damage in Warren.	Do.
Taylor, N. Y.	21					Severe wind	Homes, barns, and other small structures damaged.	Do.
Pueblo, Colo. (near)	21	P. m.				Hail	Growing crops and orchards badly damaged.	Do.
Paxton, Nebr.	22	3 p. m.	1,760		35,000	do	Severe damage to crops in places over path 6 miles long.	Do.
Burwell, Nebr.	22	6 p. m.	6 mi.		10,000	do	Corn badly injured.	Do.
Cerro Gordo, Hancock, Howard, Kossuth, Mitchell, Pocahontas, and Worth Counties, Iowa	22	P. m.				Hail and wind	Extensive property damage reported.	Do.
Vineland, Colo., and vicinity	22	do			90,000	Hail	Cucumbers, cantaloupes, and watermelons totally destroyed; other crops beaten.	Do.

<sup>1</sup> "Mi." signifies miles instead of yards.

## Severe local storms, August, 1928—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Yankton, S. Dak.	22				\$100,000	Severe thunder-storm.	Many buildings damaged.	Official U. S. Weather Bureau
Scottsbluff County, Nebr.	24	4 p. m.	6 mi.		30,000	Hail.	Beets, potatoes, and corn badly damaged; path 12 miles.	Do.
Lyman, Nebr.	24	9 p. m.	1,760		15,000	do.	Beet crop injured.	Do.
Fort Cook and Bellevue (near), Nebr.	26	4:15 p. m.	60-440		31,000	Tornado.	Buildings on 4 farms wrecked; 1 person injured; path 5 miles.	Do.
Omaha, Nebr.	26	5 p. m.	440-880		65,000	High wind.	Buildings, orchards, vineyards, and crops hurt.	Do.
Pottawattamie, Mills, Montgomery, Cass, and Adair Counties, Iowa.	26	5:30-8 p. m.		4	625,000	5 tornadoes.	Buildings wrecked; crops ruined; livestock killed.	Do.
Phoenix, Ariz.	28	6 p. m.			100,000	Rain, hail, and wind.	Many homes and business houses damaged; communication lines down.	Do.
Moline Airport, Ill.	28	2:45 a. m.			15,000	Tornado.	2 steel towers demolished.	Do.
Alpha, Mich.	28	A. m.				Thunderstorm and wind.	Buildings, trees, and grain damaged; power and telephone service interrupted.	Do.
Bessemer, Mich.	28			2		Wind.	Character of damage not reported.	Do.
Granville, Ill. (near)	29	1:30 p. m.			1,000	Tornado.	Several farm buildings damaged or demolished; trees prostrated.	Do.
Starved Rock, Ill.	29	3 p. m.	440			do.	About 100 trees uprooted or twisted off; path 4 miles.	Do.
Philadelphia, Pa.	30	6:50 p. m.		1		Severe electrical.	Numerous accidents caused by falling trees; traffic obstructed.	Do.
Rocky Ford, Colo.	31	5 p. m.	5 mi.		100,000	Hail.	Heavy crop loss, chiefly to cantaloupes.	Do.

## RIVERS AND FLOODS

By H. C. FRANKENFIELD

*Atlantic drainage.*—Heavy local rains on August 26-27 over western Massachusetts and northwestern Connecticut caused rapid rises in the lower Connecticut River and its tributary streams. An advisory warning for the former was issued accordingly and a rise of 8.9 feet occurred at Hartford, Conn., by 4 p. m. August 27. No damage occurred along the river, and was only moderate along the tributary streams. Some highways were overflowed, and there was some suspension of electric-line service.

A tropical storm prevailing at the time caused heavy rainfall from August 10 to 12 over the valley of the James River of Virginia, the amounts averaging nearly 6 inches. Stages considerably above the flood line occurred from the mouth of the Rivanna River eastward on August 11 and 12 followed by a rapid decline.

Growing crops, principally corn, were damaged and in some lowlands washed out. On August 16, another heavy rainfall, ranging from 1 to 4 inches caused a second and greater rise on account of the saturated condition of the soil and on the morning of August 17 warnings were issued. There were no floods from Lynchburg, Va., westward, but to the eastward the crest stages were from 7 to nearly 9 feet above the flood stages. Much portable property, including livestock, was removed to places of safety. Reported losses were \$104,000 of which \$40,000 were in crops, and two men were reported drowned. Value of property saved through warnings, \$32,000.

Under the influence of the same general rain conditions above mentioned floods occurred in the Roanoke river and the rivers of central and eastern North Carolina generally. The Roanoke River at Randolph, Va., reached a stage of 31.6 feet at 4 p. m., August 13, and a stage of 31.2 feet at 1 p. m., August 18, flood stage being at 21 feet. The only higher stage of record was 34 feet at 10 p. m., December 30, 1901 (U. S. G. S.).

Therises in the Neuse, Tar, and Cape Fear Rivers were not of much consequence, except in the lower Cape Fear River. In this section Elizabethtown, N. C., reported a 4-day rise with a crest of 26 feet, 4 feet above the flood stage, on August 9. A third rise in the lower river followed a heavy 1-day rain and the river at Elizabethtown was above the flood stage of 22 feet from the evening of August 23 until the early morning of August 26. The usual warnings

were issued for all rises. Damage and loss as reported amounted to \$300,000, of which \$250,000 was in crops. Reported value of property saved through warnings, \$175,000.

From the same conditions of heavy rains, floods also occurred throughout the State of South Carolina. They were not severe over the drainage area of the Pee Dee River, but throughout the Santee system and along the Savannah River they were disastrous.

The floods in the Pee Dee River system were not severe, although along the extreme lower reaches of the Pee Dee River the crests were considerably above the flood stages. Reported losses were only \$12,000, while the reported value of property saved through the warnings was \$101,000.

Numerous warnings for these floods were disseminated at the proper time, and ample opportunity was afforded for the removal of livestock and portable property in general. In the Santee River there was only a single flood, with, however, a brief pause on August 18, but above the junction of the Wateree and Santee Rivers there were two, the first, however, much smaller than the second.

During the period from August 10 to 18, the average rainfall over the Santee Basin from the two tropical storms was as follows: Coastal plain, 4.10 inches; central counties, 7.10 inches; and Piedmont section, 11.29 inches; the apex covering Spartanburg and Greenville Counties. The floods resulting from the first rain period, August 10-11, did not extend to the Catawba-Wateree Basins, and were only moderate in the Saluda area, while in the Broad and Congaree Basins they were severe with crest stages from 9.5 to 13.5 feet above the flood line. The Santee flood set in during August 12.

The second floods from the additional heavy rains of August 15-16 were remarkable for the general high stages attained and for their destructiveness. On account of the breaking of a power dam across Broad River at Lockhart, about 30 miles above, the water at Blairs reached a stage at 2 p. m. August 17 of 40 feet, 25 feet above the flood stage and 3.1 feet above the previous high-water record of July 16, 1916. The Congaree River at Columbia reached 33.5 feet, or 18.5 feet above the flood stage at 2:30 a. m. August 18. This was 2.3 feet below the high-water mark of August 27, 1908, but it was stated that in 1908 the flow was somewhat retarded by the lower works of the old highway bridge, while in 1928 there was a freer flow beneath the new bridge. Warnings of both floods were timely and